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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/066,229	01/31/2002	Brig Barnum Elliott	BBNT-P01-171	2767

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EXAMINER	
MILORD, MARCEAU	
ART UNIT	**PAPER NUMBER**
2682	

DATE MAILED: 12/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/066,229	ELLIOTT, BRIG BARNUM	
	Examiner	Art Unit	
	Marceau Milord	2682	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 January 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 January 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clayton et al (US Patent No 6795442 B1) in view of Kondylis et al (US Patent No 6665311 B2) and Larsson et al (US Patent No 6704293 B1).

Regarding claims 1-5, 9-15, 20-22, Clayton et al discloses a method for providing channel access schedules (figs. 1-2) comprising: collecting traffic flow information from at least one node operating on a network (col. 2, lines 9-41); disseminating the channel access schedules to the at least one node; and switching the network to the channel access schedules (col. 2, lines 32-57; col. 3, line 29- col. 4, line 61; col. 9, line 29- col. 10, line 59).

However, Clayton et al does not specifically disclose the steps of calculating the channel access schedules for the at least one node based on the information, the channel access schedules configured to provide no more than a predetermined level of transmit collisions between nodes;

wherein calculating comprises iteratively harmonizing the channel access schedules of nodes on the network; wherein harmonizing comprises applying at least one of a list of techniques for solving mathematically hard problems consisting of genetic algorithms, complete searches, heuristics and simulated annealing.

On the other hand, Kondylis et al, from the same field of endeavor, discloses a method and a computer program product for effective communication routing of unicast and broadcast data traffic in wireless ad-hoc networks. The routing technique separates the signaling and data transmission portions of a data frame such that the length of the signaling portion is independent of the length of the data portion. In addition, reservations are able to be performed and confirmed, while the data portion also includes a reservation confirmation portion which allows reservations made in during the signaling portion of the frame to be confirmed immediately prior to transmission of the data (col. 3, lines 13-25; col. 5, line 1- col. 6, line 62). Furthermore, a node that correctly receives a request to send signal, and is the intended receiver of the request to send signal, checks its slot classification database regarding the slots that it needs to reserve. If the slot is reserved for reception, or if a collision is received in the request to send mini-slot, the node transmit a not clear to send signal in the (not clear) to send mini-slot. Note that a collision is declared in a slot if a node detects power above some predetermined threshold in the slot, but is unable to decode a packet (figs. 3-6;col. 9, line 1- col. 10, line 65; col. 11, lines 1-56).

Larsson et al also discloses in figures 8 and 9, a method, which allows the network adaptation layer in the node to determine whether the node, which received the network adaptation layer request for route, broadcast message with piggybacked data, is the node, which generates the reply message. The node waits a predetermined amount of time. During this

predetermined amount of time the network adaptation layer of the node will examine the data from the higher protocol layers and determine whether the network adaptation layer recognizes a reply message to a DHCCP, name resolution or ARP broadcast message (col. 9, line 15- col. 10, line 67; col. 4,lines 16-67; col. 6, lines 3-65). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Larsson to the modified system of Kondylis and Clayton in order to minimize the load on the network and facilitate broadcast network traffic.

Claims 6-7 contain similar limitations addressed in claims 3 and 4, and therefore are rejected under a similar rationale.

Regarding claim 8, Clayton et al as modified discloses a method for providing channel access schedules (figs. 1-2), wherein creating comprises: determining a number of transmit slots to be assigned for a node based on the traffic flow information for the node; and randomly assigning the number of transmit slots as part of a group of time slots for the node (col. 10, line 22- col. 11, line 51).

Claims 16-17 contain similar limitations addressed in claim 1, and therefore are rejected under a similar rationale.

Regarding claim 18, Clayton et al as modified discloses a method for providing channel access schedules (figs. 1-2), wherein disseminating comprises distributing the channel access schedules by at least one technique taken from a list consisting of a flood technique, a point-to point protocol and a multicast protocol (col.9, line 29- col. 10, line 59).

Regarding claim 19, Clayton et al as modified discloses a method for providing channel access schedules (figs. 1-2), wherein switching comprises synchronizing the nodes of the

network by at least one synchronizer taken from a list consisting of an internal clock, a global positioning system and an energy pulse (col. 2, lines 9-57; col. 4, line 28- col. 5, line 50)

Regarding claims 23-25, 28-33, Clayton et al discloses a computer program (figs. 1-2) tangibly stored on a computer-readable medium and operable to cause a computer to enable a network to determine channel access schedules for nodes operating on the network, the computer program comprising instructions to: collect traffic flow information from the nodes (col. 2, lines 9-41); disseminate the channel access schedules to the nodes; and switch the network to the channel access schedules (col. 2, lines 32-57; col. 3, line 29- col. 4, line 61; col. 9, line 29- col. 10, line 59).

However, Clayton et al does not specifically disclose the features of calculating the channel access schedules for the nodes based on the information, the channel access schedules configured to provide no more than a predetermined level of transmit collisions between nodes; wherein the instructions to calculate comprise instructions to: create a node channel access schedule for an individual nodes; and harmonize the node channel access schedule with channel access schedules of collision set member nodes consisting of neighbor nodes of the individual node and of nodes having a common neighbor with the individual node until the predetermined level of transmit collisions is obtained; wherein the instructions to harmonize comprise instructions to reassign transmit slots for the individual node when a transmit slot in the individual node corresponds with a transmit slot of the channel access schedule of at least one of the collision set member nodes.

On the other hand, Kondylis et al, from the same field of endeavor, discloses a method and a computer program product for effective communication routing of unicast and broadcast

data traffic in wireless ad-hoc networks. The routing technique separates the signaling and data transmission portions of a data frame such that the length of the signaling portion is independent of the length of the data portion. In addition, reservations are able to be performed and confirmed, while the data portion also includes a reservation confirmation portion which allows reservations made in during the signaling portion of the frame to be confirmed immediately prior to transmission of the data (col. 3, lines 13-25; col. 5, line 1- col. 6, line 62). Furthermore, a node that correctly receives a request to send signal, and is the intended receiver of the request to send signal, checks its slot classification database regarding the slots that it needs to reserve. If the slot is reserved for reception, or if a collision is received in the request to send mini-slot, the node transmit a not clear to send signal in the (not clear) to send mini-slot. Note that a collision is declared in a slot if a node detects power above some predetermined threshold in the slot, but is unable to decode a packet (figs. 3-6;col. 9, line 1- col. 10, line 65; col. 11, lines 1-56).

Larsson et al also discloses in figures 8 and 9, a method, which allows the network adaptation layer in the node to determine whether the node, which received the network adaptation layer request for route, broadcast message with piggybacked data, is the node, which generates the reply message. The node waits a predetermined amount of time. During this predetermined amount of time the network adaptation layer of the node will examine the data from the higher protocol layers and determine whether the network adaptation layer recognizes a reply message to a DHCCP, name resolution or ARP broadcast message (col. 9, line 15- col. 10, line 67; col. 4,lines 16-67; col. 6, lines 3-65). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Larsson to

the modified system of Kondylis and Clayton in order to minimize the load on the network and facilitate broadcast network traffic.

Claims 26-27 contain similar limitations addressed in claims 3 and 4, and therefore are rejected under a similar rationale.

Regarding claims 34 and 37, Clayton et al discloses a network (figs. 1-2) configured to determine channel access schedules for nodes operating on the network (col. 2, lines 9-41), comprising: a collection module to obtain traffic flow information from the nodes (col. 2, lines 9-41); a broadcast module to disseminate the channel access schedules to the nodes; and a synchronizer to switch the network to the channel access schedules at a given time (col. 2, lines 32-57; col. 3, line 29- col. 4, line 61; col. 9, line 29- col. 10, line 59).

However, Clayton et al does not specifically disclose the features of at least one processor to calculate the channel access schedules for the nodes based on the information and to configure the channel access schedules to provide no more than a predetermined level of transmit collisions between nodes; a broadcast module to disseminate the channel access schedules to the nodes.

On the other hand, Kondylis et al, from the same field of endeavor, discloses a method and a computer program product for effective communication routing of unicast and broadcast data traffic in wireless ad-hoc networks. The routing technique separates the signaling and data transmission portions of a data frame such that the length of the signaling portion is independent of the length of the data portion. In addition, reservations are able to be performed and confirmed, while the data portion also includes a reservation confirmation portion which allows reservations made in during the signaling portion of the frame to be confirmed immediately prior

to transmission of the data (col. 3, lines 13-25; col. 5, line 1- col. 6, line 62). Furthermore, a node that correctly receives a request to send signal, and is the intended receiver of the request to send signal, checks its slot classification database regarding the slots that it needs to reserve. If the slot is reserved for reception, or if a collision is received in the request to send mini-slot, the node transmit a not clear to send signal in the (not clear) to send mini-slot. Note that a collision is declared in a slot if a node detects power above some predetermined threshold in the slot, but is unable to decode a packet (figs. 3-6;col. 9, line 1- col. 10, line 65; col. 11, lines 1-56).

Larsson et al also discloses in figures 8 and 9, a method, which allows the network adaptation layer in the node to determine whether the node, which received the network adaptation layer request for route, broadcast message with piggybacked data, is the node, which generates the reply message. The node waits a predetermined amount of time. During this predetermined amount of time the network adaptation layer of the node will examine the data from the higher protocol layers and determine whether the network adaptation layer recognizes a reply message to a DHCCP, name resolution or ARP broadcast message (col. 9, line 15- col. 10, line 67; col. 4,lines 16-67; col. 6, lines 3-65). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Larsson to the modified system of Kondylis and Clayton in order to minimize the load on the network and facilitate broadcast network traffic.

Claims 35-36 contain similar limitations addressed in claims 3, 4, 26 and 27, and therefore are rejected under a similar rationale.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Chandra et al US Patent No 6397359 discloses a methods, systems and computer program products that provided which test network performance by defining test schedules.

Fawaz et al US Patent No 6654374 B1 discloses a method and apparatus to reduce jitter in packet switched networks.

Eneboc et al US Patent No 6744772 B1 discloses a switched node for use in a multi-dimensional switched fabric network.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marceau Milord whose telephone number is 703-306-3023. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian C. Chin can be reached on 703-308-6739. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MARCEAU MILORD

Marceau Milord

Examiner
Art Unit 2682

MARCEAU MILORD
PRIMARY EXAMINER

12-10-04